

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-11 are pending in the present application, Claim 1 having been amended by the present amendment.

In the outstanding Office Action, Claims 1-5 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 1, 3, 4, and 11 were rejected under 35 U.S.C. § 102(b) as anticipated by Arai et al. Claim 2 was rejected under 35 U.S.C. § 103(a) as unpatentable over Arai et al. Claims 6-10 were allowed.

Firstly, Applicant acknowledges with appreciation the indication of allowance for Claims 6-10.

Secondly, Applicant acknowledges with appreciation the courtesy of Examiner Vu and Supervisory Examiner Lee to conduct an interview for this case on March 10, 2004. During the interview, the issues in the outstanding Office Action were discussed as substantially summarized herein.

Regarding the rejection of Claims 1-5 under 35 U.S.C. § 112, first paragraph, as discussed during the interview, presently amended Claim 1 defines a ceramic substrate having metal layers formed on both surfaces. One of the metal layers joined directly to a surface of the metal block. Claim 1 corresponds to Applicant's Figure 4 in which a ceramic substrate 6 having metal layers 5 and 7 is directly joined to the metal block 3 through a material layer 10 (i.e., a first jointing material). With this clarification, it is respectfully submitted that the 35 U.S.C. § 112, first paragraph, rejection should be withdrawn.

Accordingly, as clarified, Claim 1 defines a ceramic substrate having metal layers formed on both surfaces is joined directly by a first jointing material to a surface of a metal block on which a semiconductor element and an electrode are joined. The outstanding Office Action states that Arai et al disclose a ceramic substrate 301 joined to the second surface of the metal block 330 and having metal layers 312, 340 formed on both surfaces, and identifies metal block 330 as the block on which a semiconductor element and an electrode are joined. However, as discussed during the interview, in the device disclosed in Figure 10 of Arai et al, a ceramic substrate 320 is interposed between the metal block 330 and the Cu plate 312. Thus, Arai et al with its teaching of an interposed ceramic substrate do not anticipate presently amended Claim 1.

Moreover, Applicant respectfully submits that the semiconductor device recited in amended claim 1 has a better thermal diffusion characteristic than that of a device disclosed by Arai et al, where the second ceramic substrate 320, which will block thermal diffusion, is interposed between the second metal plate 330 and the first ceramic substrate 301.

Further, in reference to the device shown in Figure 10 of Arai et al, an output terminal of a control element 5 is electrically connected to a base electrode 310B (see column 6, lines 56-58 of Arai et al). In the device shown in Figure 10, if the second metal plate 330 and the copper plate 312 formed on the first ceramic substrate 301 (emitter electrode 310 E) are joined by removing the ceramic substrate 320, then the output terminal of the control element 5 would be electrically connected to both the base electrode 310B and the emitter electrode 310E, causing an inconvenience. Therefore, it is impossible to joint the second metal plate 330 and the copper plate 312 formed on the first ceramic substrate 301 directly as in the claimed device.


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Accordingly, for these reasons and those reasons discussed during the interview, it is respectfully submitted independent Claim 1 and each of the claims depending therefrom patentably define over the applied prior art.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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